Comprehensive Wetland Assessment and Monitoring Program within the Lostwood Complex of Northeast Montana and Northwest North Dakota

FY13

PROJECT DESCRIPTION

The Williston Basin is a leading source of domestic oil and gas production and water (brine) co-produced with oil in this area is some of the most saline in the nation. The Prairie Pothole Region (PPR), characterized by glacial sediments and numerous wetlands, covers much of the Williston Basin. The Lostwood Complex manages several hundred Waterfowl Production Areas (WPAs) and National Wildlife Refuges within the PPR of the Williston Basin. Brine contamination to aquatic resources (surface and shallow groundwater) has been documented near oil-field sites in the Williston Basin and PPR. However, the extent of brine contamination on Lostwood Complex parcels is unknown.

During FY13 USFWS interest lands (both fee-title and easements) within the Lostwood Complex experienced extensive contamination by brine water. For example, within the NE MT Wetland Management District, Anderson WPA experienced 2 brine water spills that contaminated 2 wetlands and several acres of uplands. Remediation activities will continue for years into the future and their success is uncertain. In addition, the number of brine water spills in NW ND is skyrocketing. For instance, in Divide County alone there were 86 reported spills with approximately 40% occurring on easements. Many more go unreported and continuous monitoring remains the best method for contamination detection. As an example, an oil well near Norman Lake WPA experienced equipment failure that resulted in brine water overflowing the pad berm and contaminated the WPA. This spill went unreported and it was only discovered after the District manager happened upon it.

The purpose of this project is to quantify the vulnerability and biological integrity of wetlands within the Lostwood Complex and develop a long-term monitoring program for wetland degradation associated with oil and gas development and other land use changes. Currently, management lacks a comprehensive assessment of even basic wetland assemblages on fee-title lands.

OBJECTIVES AND ALTERNATIVES

During FY 2013, Complex biologists will work with university and agency scientists to gather legacy data on biological, chemical and physical attributes of wetlands on fee-title lands within the Complex and develop a searchable Microsoft Access database for Complex staff.

During the spring and summer of 2013, Complex biologists will work with the USGS Northern Rocky Mountain Science Center (NOROCK) to complete a vulnerability assessment of fee-title lands to determine the likelihood of contamination.

DATA ANALYSIS / MODELS

Please see supplemental report for a detailed description of vulnerability assessment completed by USGS NOROCK researchers.

DATA MANAGEMENT

Historic water quality data from surveillance conducted within the NE MT Wetland Management District by USFWS ES and Montana Bureau of Mines and Geology has been compiled into ArcGIS as a part of the Vulnerability Assessment validation process. This data, as well as all future water quality data, will be accessible through both ArcGIS and a Microsoft Access database.

PARTNERS

We have worked closely with representatives from the Montana Bureau of Mines and Geology, Montana Tech of the University of Montana, USGS NOROCK, USGS Water Resources, USFWS ES, PPPLC and Water Resources.

CURRENT STATUS

Currently, the vulnerability assessment has been completed by the USGS NOROCK researchers and it is currently being rolled out to staff within the Lostwood Complex. Over the winter we plan to use the vulnerability assessment to help guide sample site selection and prioritization during the inventory phase of the project in FY14 and FY15. In addition, during FY 13 we were able to complete a Blanket Purchase Agreement for aquatic macro-invertebrate sample processing with Rhithron Associates, Inc. and a co-operative agreement with Montana Tech of the University of Montana for comprehensive water analysis. These agreements will be used for sample analyses during both the inventory and monitoring phases of the project.

MORE INFORMATION

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